Bulletin #9

This issue was released on August 15, 2000.

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Ten New Preliminary Seismic Hazard Zone Maps Released for Public Review and Comment

Ten preliminary Seismic Hazards Zone maps covering parts of Los Angeles, Orange, San Francisco, Santa Clara, and Ventura counties have been released for public review and comment. On May 15, 2000, the Department of Conservation released the Mt. Baldy, Moorpark, Ontario, Thousand Oaks, Tustin (revised) 7.5-minute quadrangles and the city and county of San Francisco. On June 30, 2000, Prado Dam, Black Star Canyon, El Toro and San Jose East 7.5-minute quadrangles were released.

The maps show seismic hazard zoning at a scale of one inch equals two thousand feet. They are presented on U.S.Geological Survey base maps which show topographic contour lines and cultural features such as streets, reservoirs and some large public buildings. Fifty-one (51) maps have now been released; forty-six in southern California and five in northern California (see facing page). Each map depicts earthquake-induced landslide and liquefaction hazards based on detailed geologic, topographic and geotechnical analysis by geologists in the Department of Conservation's Division of Mines and Geology.

These maps are being used as a screening tool to help local planning and building departments identify areas where site-specific hazard investigations are required. Much of the zoned areas are underlain by saturated sands and silts that may liquefy during intense ground shaking, or are steep slopes made of weak materials where earthquakes are likely to trigger slope failure.

The release of Preliminary Maps signals the beginning of a 90-day review and comment period. That review period will end either August 15, 2000 or September 28, 2000 based upon the respective release date.

Following the comment period, DMG has 90 days to consider comments and revise the maps. DMG plans to distribute all Official versions of the maps by the end of December, 2000.

Comments from interested parties or organizations must be submitted to the State Mining and Geology Board. The board's address is:

801 K Street, MS 24-05
Sacramento, CA 95814

CITIES AND COUNTIES AFFECTED BY THE MAY 15 AND JUNE 30, 2000 PRELIMINARY SEISMIC HAZARDS ZONE MAP RELEASES

SOUTHERN CALIFORNIA				NORTHERN CALIFORNIA
Orange County		Los Angeles County	Ventura County	City and County of San Francisco
Anaheim Costa Mesa Irvine Laguna Hills Mission Viejo	Newport Beach Orange Santa Ana Tustin Yorba Linda	Aguora Hills Claremont La Verne Pomona Westlake Village	Thousand Oaks Moorpark Simi Valley	Santa Clara County City of San Jose

Seismic Hazards Evaluation & Mitigation Course Offered

On August 17-19, the University of California Berkeley Extension sponsored an intensive three-day short course covering the latest information on seismic hazard evaluation and mitigation required by the California Seismic Hazards Mapping Act.

This course gives an overview of recent advances in seismic geotechnics, with special emphasis on ground motions, site response, soil liquefaction and seismic slope stability and deformations. It is presented by some of California's leading researchers and experts in seismic hazard evaluation.

The course content is organized to present a concise, practical focus with an even-handed discussion of alternative approaches and controversial topics. Topics included the selection and use of strong motion data, evaluation and mitigation of liquefaction, evaluation of slope instability and deformation and recent advances in other areas of seismic geotechnics. An overview of geotechnical lessons learned from the recent Taiwan and Turkey earthquakes was included. Additional information is available at: www.berkeley.edu/unex/eng

The San Francisco Department of Building Inspection Hosted Two Workshops for Public Comment and Review

On May 15, 2000, the Department of Conservation, Division of Mines and Geology released a Preliminary Seismic Hazards Zone map for the City of San Francisco. The May 15 release augments the Official Seismic Hazards Zone Map issued April 7, 1997 which mapped only liquefaction in the north half of the City. The new release extends the liquefaction zone south throughout the remainder of the City and includes earthquake-induced landslide zones.

In response to the mandatory 90-day review period, building inspectors Laurence M. Kornfield and Zan Turner of the San Francisco's Department of Building Inspection hosted two workshops to receive public comments

The workshops were held to allow concentrated review and focus on each seismic hazard individually. The Department of Building Inspection mailed 530 public notices to interested parties for both workshops. Approximately 300 notices contained maps showing liquefaction zones, borehole locations and earthquake-induced landslides prepared on the City's street base map. The remainder of the notices indicated maps would be available if requested. At the first workshop, held June 15, 2000, the existing and proposed areas of liquefaction were discussed.

At the second workshop, held July 13, 2000, earthquake-induced landslides hazards were discussed. Representatives of various neighborhood groups, engineering firms, city staff and DMG staff attended.

DMG staff's role at the workshops was to explain the Seismic Hazards Mapping Act and methodology used in delineating the zones. The public workshops were held in order to solicit historic photos, information and details on local landslides, seeps, springs and areas of filled ground from local residents and area associations and consultants. The public comments received will be added to the City's review comments on the map.

In initiating these public workshops, the City of San Francisco has taken a proactive role in opening up the public review process. Their mailings targeted local historic societies and architectural, engineering and geotechnical firms that have done projects locally in the City. In addition to the public workshops held by the City, interested parties were given the opportunity to submit comments at the State Mining and Geology Board Hearing scheduled August 11, 2000 in San Francisco.

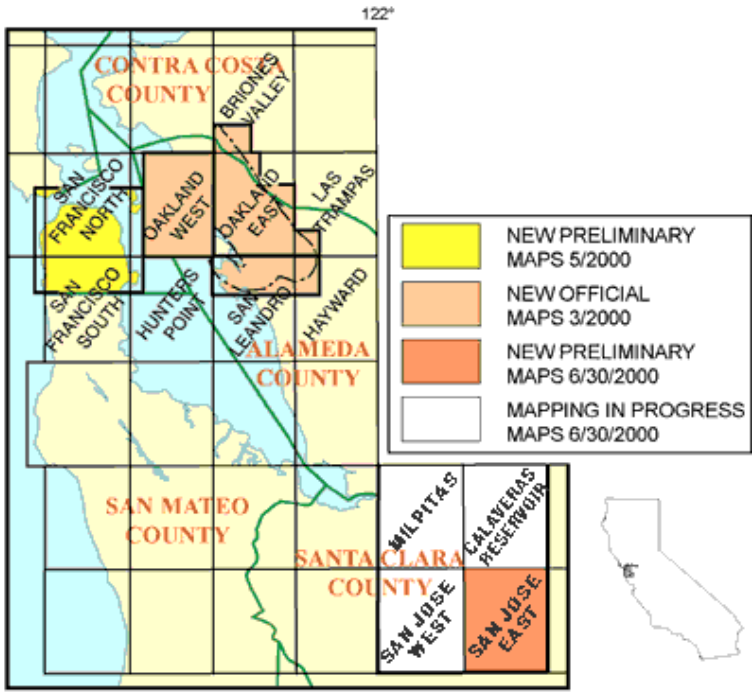
San Francisco's DMG District Office Gears up For Seismic Hazard Zone Mapping in Northern California

With the addition of five Engineering Geologists, DMG's San Francisco district office is nearly fully staffed for Seismic Zonation work. With the added staff, the San Francisco office will now take the lead in mapping Seismic Hazards Zones throughout the Bay Area.

Keith Knudsen, formally with William Lettis & Associates, recently accepted the Senior Engineering Geologist position at the San Francisco office and will lead the mapping effort. Prior to coming to DMG, Keith was working with U.S. Geological Survey staff on several National Earthquake Hazard Reduction Program grants, mapping Quaternary geology and liquefaction susceptibility throughout the Bay Area. He will continue this mapping in his new position as a DMG employee and that mapping will be incorporated in seismic hazards zoning efforts in the Bay Area.

Joining Keith are; Kent Aue, Kevin Clahan, Anne Rosinski and Mark Wiegers. This team of experienced geologists is excited about the opportunity to map in the Bay Area. They have recently completed the zone map for San Jose East Quadrangle.

These San Francisco geologists are just beginning data collection and mapping of the Milpitas, Calaveras Reservoir and San Jose West Quadrangles. A "kickoff" meeting was held on July 13, 2000 with San Francisco



and Sacramento DMG staff and City of Milpitas staff to introduce the Seismic Hazards Mapping Act and begin the process of acquiring data for the Milpitas Quadrangle. This process of coordinating with local lead agencies will take place as DMG prepares zone maps throughout the Bay Area.

Evaluation Reports Now Available on the Web

There are now sixteen new evaluation reports available on the Department of Conservation's Web site. These reports provide background documentation for Seismic Hazards Zone maps. The evaluation reports include Azusa, Beverly Hills, Burbank, Hollywood, Inglewood, Long Beach, Los Alamitos, Los Angeles, Mint Canyon, Mt. Wilson, City of Oakland, Pasadena, San Fernando, South Gate, Sunland, and Venice quadrangles.

Evaluation reports document the methods and data used to produce liquefaction and earthquake-induced landslide zone maps. Information such as the location of borings, interpreted landslide features, documented slope failure and historic groundwater levels are included. A section on ground shaking potential shows the magnitude and distance of the predominant earthquake used in selecting a seismic record for our stability analysis. Also available are three figures showing an estimation of ground acceleration parameters for firm rock, soft rock and alluvium conditions that

New Data Examined During Public Review Changes Oakland's Official Zone Map

During the required 90-day map review period following release of the Oakland Preliminary Seismic Hazards Zone maps, DMG evaluated new data presented by consultants, the U.S. Geological Survey and others. Some of these data resulted in significant changes to the zoning before the Official Seismic Hazard Zone map was issued on March 30, 2000. The three new sources of data evaluated include:

1) *Subsurface borings and soil tests were provided by URS Greiner Woodward Clyde and William Lettis and Associates.*

These data resulted in a re-interpretation of the subsurface thickness of the dissected alluvial and fluvial terraces underlying much of the southern half of the City. The result was that nearly 30% of the area was taken out of the zone south of the city center.

2) *Cone Penetration Testing done by the U.S.*

apply across each of the quadrangles. These parameters are not appropriate for site specific structural design applications. Limitations on use are discussed in the reports.

Although some of the base maps that the zone maps are printed on date from the 1960's, the topographic information used locally in the analyses is from digital elevation models made using recent aerial photos and radar data. Areas where new topographic information was included, such as large-scale graded sites, are identified in the reports.

The current list of evaluation reports can be accessed at the Seismic Hazards Evaluation and Zoning project address (www.consrv.ca.gov/dmg/shezp).

Geological Survey, which was not completed until after the initial zoning process was completed, helped to define the subsurface contact of Holocene Merritt Sand with older sediments. Although this new information resulted in minor changes to the zone boundary north and south of the downtown area, the data in general reaffirmed DMG's original interpretation of liquefaction susceptibility.

3) ***A 1975 U.S. Geological Survey map based on air-photo interpretation of landslides and other surficial deposits*** was re-evaluated during the review period. DMG staff examined each of the mapped features using multiple sets of historic air-photos, made some changes to the landslide inventory and ran a comparison between the final landslide inventory and a debris flow stability model (SHALSTAB) being developed by the University of California at Berkeley. This re-evaluation led to minor additions, deletions and modification of zones on the final map.

These modifications show the importance of the public review and comment period. Local review ensures that the Official Seismic Hazards map incorporate geologic, engineering and cultural information that may have been unavailable, or possibly misinterpreted during the zoning process. This process also helps build consensus by giving consultants, earthquake researchers and the general public access and input to the Seismic Hazards Zone maps.

REMINDER: FILING OF SITE INVESTIGATION REPORTS

Cities and counties where official seismic hazard zone maps have been released are required to send a copy of any required site investigation report to the State Geologist within 30 days of acceptance. The purpose of this submittal is to expedite future updates of the zone maps by DMG. The Department of Conservation has no review authority and does not approve or disapprove the reports. Send reports to:

Department of Conservation
Division of Mines and Geology
Attn: Seismic Hazard Reports
801 K Street, Room 1200
Sacramento, CA 95814

To Order Seismic Hazard Zone Maps

Seismic hazard zone maps for liquefaction and/or landslide potential are available from:

BPS Reprographic Services
149 Second Street
San Francisco, CA 94103
(415) 512-6550

Contact BPS for price information.

For More Information...

The **Department of Conservation's Division of Mines and Geology** posts information pertaining to the **Seismic Hazard Mapping Program** and the **Fault Evaluation and Zoning Program** at the Department of Conservation's Web site: **http://www.conservation.ca.gov/cgs/**

For assistance with guideline and/or map interpretation, questions or comments about the home page, or availability of data and data services, or for information about outreach services available to local governments, contact:

Candace Hill, Outreach Coordinator
Voice: (916) 322-2718

Fax: (916) 445-3334
E-mail: chill@consrv.ca.gov

For information about the **Fault Evaluation and Zoning Program,** contact:

Bill Bryant, Senior Geologist
Voice: (916) 323-9672
Fax: (916) 322-4765
E-mail: bbryant@consrv.ca.gov